

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 21

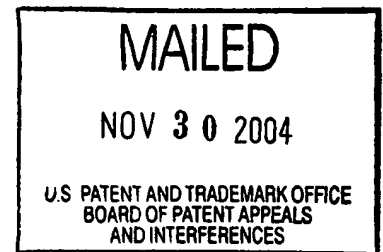
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte JAMES PRICE COFFIN IV

Appeal No. 2004-0715  
Application No. 09/422,208

ON BRIEF<sup>1</sup>



Before JERRY SMITH, RUGGIERO, and LEVY, Administrative Patent Judges.

LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 8-24, which are all of the claims pending in this application.

BACKGROUND

Appellants' invention relates to a system for detecting injection molding material. An understanding of the invention

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<sup>1</sup> The Oral Hearing scheduled for December 8, 2004 was waived by appellants in a communication sent, via facsimile, on September 30, 2004.

can be derived from a reading of exemplary claim 8, which is reproduced as follows:

8. A method of determining whether an injection mold is substantially free from any leftover molding material, the method comprising:

injecting molding material including a fluorescent colorant into a mold to create a workpiece;

releasing the mold;

directing ultraviolet light into at least a portion of the mold with sufficient energy to cause emissions from the fluorescent colorant of any remaining molding material to be detectable; and

when remaining molding material is detected, removing the remaining molding material.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Shibata et al. (Shibata)	4,236,181	Nov. 25, 1980
Neeffe	4,632,773	Dec. 30, 1986
Hill et al. (Hill)	5,656,210	Aug. 12, 1997

Claims 8-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hill in view of Neeffe and Shibata.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellant regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 17, mailed

July 15, 2003) for the examiner's complete reasoning in support of the rejections, and to appellant's corrected brief (hereinafter: brief), (Paper No. 16, filed April 16, 2003) for appellant's arguments thereagainst. Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered.

#### OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejection advanced by the examiner, and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellant's arguments set forth in the brief along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

Upon consideration of the record before us, we reverse, essentially for the reasons set forth by appellant. We begin with claim 8. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to

support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467(1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of

the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner's position (answer, pages 4 and 5) is that Hill lacks an inspection device which detects any remaining luminescent molding material, in at least a portion of the mold by detecting luminance excited by ultraviolet (UV) light. To overcome this deficiency of Hill, the examiner turns to Neefe, referred to in Hill, for a teaching that luminescent material may be excited by UV light. The examiner additionally relies upon Neefe for a teaching that it is known to use luminescent compounds in contact lenses for the purpose of determining the location of the contact lenses. In addition, the examiner relies upon Shibata (answer, page 5) for a teaching of "Shibata et al. teach detecting light emitted from molded articles or molded article portions in order to locate the molded articles or portions thereof so as to determine if there is incomplete separation which results in a defective molded article since part of the defective molded article remains in the mold." In the examiner's opinion, it would have been obvious to detect

luminance (excited by UV light) from the remaining mold material in Hill in order to determine if there is incomplete separation of the molded article from the mold.

Appellant asserts (brief, page 5) that the combination of the Hill, Neeffe and Shibata patents is improper because without the knowledge of appellant's invention, neither the references nor knowledge available to an artisan supply a motivation to make the combination. It is argued (id.) that even if the teachings of the references could be combined, the combination fails to teach or suggest energizing a colorant in a workpiece to facilitate detection of unwanted leftover molding materials.

Appellant further asserts (brief, page 6) that Hill and Neeffe fail to teach or suggest use of any mold inspection device for inspecting the released mold. Appellant (id.) acknowledges that Hill and Neeffe provide mechanisms for flushing a mold. It is argued that Hill and Neeffe fail to teach or suggest any inspection thereof, and that they fail to teach or suggest any employment of florescent tagging to detect leftover material in the mold.

Turning to Shibata, appellant asserts (brief, pages 6 and 7) that Shibata discloses a defect detecting device where the

brightness of a product from a mold, under ambient light is measured by photo detectors and is compared to a standard, such as either the luminance of the surface of the cavity of the mold, or the product. Appellant submits (brief, page 7) that an artisan having the Hill and Neefe tagging colorant would not be motivated to add an inspection device for detecting leftover materials in the mold. Appellant further asserts (brief, pages 7 and 8) that while Hill and Neefe disclose the use of fluorescent materials for tagging, that they fail to disclose or suggest the use of fluorescent material in any type of mold inspection. It is further asserted (brief, page 8) that in Shibata, the mold watching device uses a TV camera, television, and photo sensors placed on the TV screen to detect if there is incomplete separation of the workpiece from the mold through either the brightness of the mold or the luminance of the workpiece. In addition, the photo sensors must rely on the color of the workpiece during ambient light for detection. As a result, Shibata fails to teach or suggest the use of an energized color of the workpiece based on, for example, a UV source.

From our review of Hill, we find that Hill is directed to a reaction injection process for making transparent contact lenses

(col. 1, lines 6-10 and col. 6, line 9). Hill discloses that the contact lenses are formed in molds (col. 12, lines 5 and 6), and that Hill further discloses that the purpose of the process is to reduce and eliminate shrinkage related defects in the contact lenses (col. 14, lines 30-32). In addition, Hill refers to the Neeffe patent (relied upon by the examiner) for a teaching of polymerization in the presence of a syrup containing, inter alia, fluorescent colored pigment in order to obtain a contact lens blank material which can be readily identified (col. 2, line 66 through col. 3, line 3). Moreover, Hill discloses that after the polymerization process is completed, external mold release agents may be utilized, to facilitate demolding (col. 13, line 60 through col. 14, line 6). From the disclosure of Hill, we find no teaching or suggestion of any recognition of a problem relating to inspecting the mold to determine if any of the molding material remained in the mold after the contact lens film was removed. Turning to Neeffe, we find that Neeffe is also related to a method of making contact lenses (col. 1, line 2). Neeffe discloses that in the prior art, fluorescent dots have been applied to the front surfaces of the contact lenses to identify the right and left lenses, and that fluorescent material has been



known, since the 1970s, to be added to the bifocal segment to make the segment visible to the contact lens fitter. Fluorescent compounds have also been used in contact lenses to allow them to be located in the dark (col. 1, lines 6-21). Neefe discloses that currently, the practitioner has no method to identify the material of the lens, and that the materials may differ only by their oxygen permeability or wetting angle. Because of problems with counterfeiting and misleading advertising, a method is needed for the practitioner and laboratories to identify lens material for duplication purposes and to prevent receiving materials other than those ordered (col. 1, lines 27-39).

Neefe discloses that a small amount of colored UV activated fluorescent material is evenly distributed throughout the lens. The fluorescence is of a low level and is not visible to the naked eye until the light is concentrated at the lens edge. This occurs only when the lens is dry and off of the eye. The fluorescent light emanating from within the lens is concentrated at the lens edge and is visible in a darkened room as a colored light at the periphery of the lens (col. 1, line 67 through col. 2, line 2). In this manner, each material manufacturer, by using

a different color fluorescence can provide a positive identification for his contact material (col. 4, lines 52-54).

From this disclosure of Neeffe, we find that Neeffe uses a UV activated fluorescent coloring in order to determine the contact lens material or the manufacturer. We find no teaching or suggestion of using fluorescent material for determining whether material is left in the mold after the molding process. Although reviewing the contact lens to determine the lens material or manufacturer can be considered an inspection, we find no teaching or suggestion of any process of inspecting the mold or the contact lens to determine if contact lens material has been left in the mold after the molding process. Nor is there any disclosure of inspecting the contact lens while it is still in the mold, as Neeffe discloses that the fluorescent light is visible in a darkened room, when the lens is dry and off of the eye. Although we find no suggestion to combine the teachings of Hill and Neeffe for appellant's purposes, we find that the teachings of Neeffe can be applied to Hill for the purpose of being able to identify the material of the lens or the lens manufacturer. It is not necessary that the references be combined for the reasons disclosed by appellant. As long as some

motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not require that the references be combined for the reasons contemplated by the inventor. See In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991) and In re Beattie, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992).

Turning to Shibata, we find that Shibata is directed to a defect detecting device wherein a watching device is used in a injection molding system to watch for incomplete separation of the molded article from the mold (col. 1, lines 15-18). In a plastic injection molding system, a molten plastic material is injected into a closed mold cavity between a moveable mold half and a fixed mold half. The hardened article is automatically ejected from the moveable mold half by means of ejector pins. However, it often happens that the article or part of the article does not fall from the movable half, but rather sticks thereto. If the mold halves are closed with the hardened article left therebetween, the mold halves would be damaged since the article is normally displaced from the cavity and the mold halves are normally pressed against each other with an extremely high

pressure (col. 1, line 55 through col. 2, line 7). Shibata discloses that it is required to use a mold watching device for watching whether the hardened plastic material is left in the mold. When the plastic material is left in the mold, the watching device gives a signal to the injection molding machine so as not to close the mold (col. 2, lines 9-13). Shibata discloses that in the past, a weight scale type of watching device was used, which would compare the weight of the article with a predetermined weight. However, the watching device would malfunction if a very small part of the article was left in the mold (col. 2, lines 15-29).

In accordance with the invention of Shibata, an image is formed on an image forming means, wherein one or more photo sensors are positioned adjacent to the image forming medium to measure the brightness of a point or points of the visible image. A television camera is used as the image forming means. Photo sensors are put on the surface of the image forming medium so that the light from the point on the image is received by the photo sensor (col.3, lines 35-63). Generally, the luminance of the plastic material is different from the material forming the mold. When plastic material remains in the mold cavity, the

amount of light received by the photo sensor differs from the amount of light received when the cavity is free of plastic material. The plastic material is generally colored in red, green or blue, whereas the surface of the mold is generally gray (col. 4, lines 2-16). As shown in figure 1, mold 1 has movable mold half 2a and fixed mold half 2b. When the movable mold is separated from the fixed mold half, the plastic article is ejected. The mold watching device comprises television camera 10, television set 20, eight photo sensors 30a-30h, and a determining circuit 31. The quantity of light received by each photo sensor when the product has been removed from the mold is lower than when the product remains in the mold. Control circuit 34 is arranged to permit closure of the mold only when the plastic has been removed from the mold (col. 5, lines 28-65). Even if only one comparator outputs a signal which indicates that the plastic article remains on the mold, the mold should not be closed (col. 7, lines 15-17).

From the disclosure of Shibata, we find that Shibata is closer to appellant's invention than Hill or Neeffe because Shibata is directed to inspecting a mold to detect if any of the plastic material remains in the mold after the molded article has

been removed. In addition, from the disclosure of detecting the luminance of the plastic material left in the mold after the molding process, we find that Shibata teaches providing a colorant to the molding material so that any molding material left in the mold after the molding process can be readily detected. However, Shibata differs from the present invention, as recited in claim 1, in that Shibata uses a television camera, television and photo sensors to detect plastic material remaining in the mold after the molding process. Shibata does not disclose that the coloring material be a fluorescent colorant, which upon application of UV light will cause emissions from the fluorescent colorant to be detectable, as required by claim 1.

Although Neeffe discloses the use of fluorescent coloring in the article being molded, which can be detected upon application of UV light, because Neeffe uses the fluorescent colorant for determining the material used in the molding process or the manufacturer of the material, we find no suggestion to combine the teachings of Shibata with the teachings of Hill and Neeffe, as advanced by the examiner, except from the examiner using appellant's disclosure as a template to combine the prior art. "Obviousness may not be established using hindsight or in view of

the teachings or suggestions of the inventor." Para-Ordnance Mfg. v. SGS Importers Int'l, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995) (citing W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1551, 1553, 220 USPQ 303, 311, 312-13 (Fed. Cir. 1983)). "It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious." In re Fritch, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing In re Gorman, 933 F.2d 982, 987, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991)).

In addition, because there is no need in Shibata to use fluorescent colorant to determine the material used or the manufacturer of the molding material, we find no suggestion to apply the fluorescent colorant of Neefe to the teachings of Shibata.

In sum, we find that the examiner has failed to establish a prima facie case of obviousness of claim 8. Accordingly, the rejection of claim 8, and claims 9-14, dependent therefrom, under 35 U.S.C. § 103(a) is reversed.

Turning to independent claim 15, as claim 15 also requires the use of a fluorescent colorant and the application of UV light to energize the colorant of any leftover flowable materials left

in the mold, we find that the combined teachings of Hill, Neefe and Shibata fail to establish a prima facie case of obviousness of claim 15. Accordingly, the rejection of claim 15, and claims 16-20, which depend therefrom, is reversed.

Turning to independent claim 21, as claim 21 requires that the workpiece includes a fluorescent colorant, and directing a light source to the workpiece with sufficient energy to cause the fluorescent colorant to emit a second, detected light, that is visible to humans, we find that the combined teachings of Hill, Neefe and Shibata fail to establish a prima facie case of obviousness of claim 21. Accordingly, the rejection of claim 21, and claims 22-24, which depend therefrom, is reversed.

#### OBSERVATION AND REMARKS

In light of the teachings of Shibata, the examiner should consider conducting an additional search to determine if any prior art exists, that would suggest, in an injection molding environment, the use of fluorescent coloring that is excited by UV light to determine if any material remains in the mold subsequent to the molding process.



To summarize, the decision of the examiner to reject claims 8-24 under 35 U.S.C. § 103(a) is reversed.

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